Session 3
Solutions

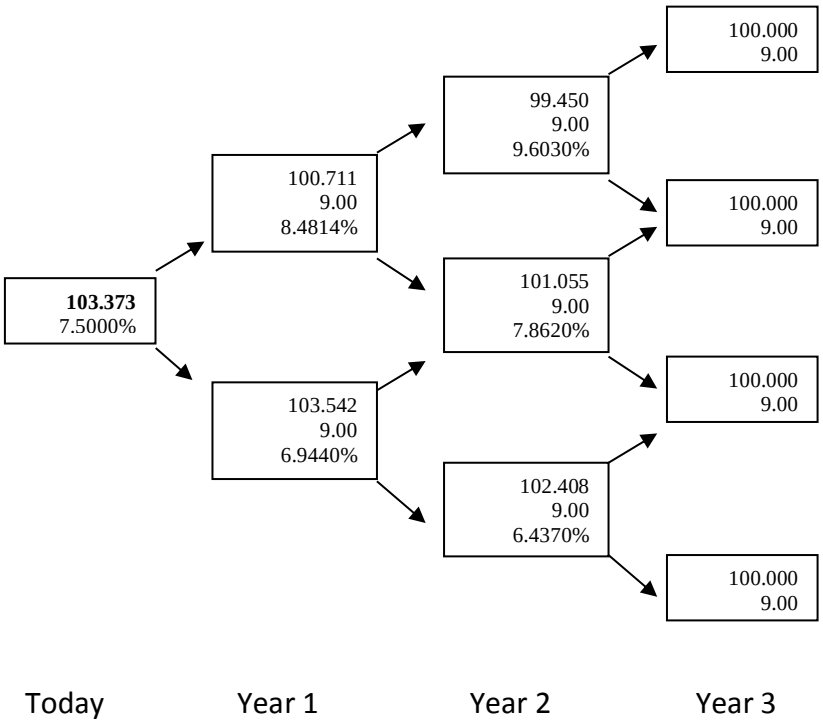
Question 1

The price of a callable bond can be expressed as follows:
Price of a callable bond = price of option-free bond – price of embedded call option

An increase in interest rates will reduce the price of the option-free bond. However, to partially offset that price decline of the option-free bond, the price of the embedded call option will decrease. This is because as interest rates rise the value of the embedded call option to the issuer is worth less. Since a lower price for the embedded call option is subtracted from the lower price of the option-free bond, the price of the callable bond does not fall as much as that of an option-free bond.

Question 2

a) The value of the 3-year treasury bond is 103.373, as shown below



b. The current price of the bond is 103.373 as found in part i) and the price assumed in the question. The value of the 2-year call option is $2.5886, as shown below: